**The Light company**
Houston Lighting & Power South Texas Project Electric Generating Station P. O. Box 289 Wadsworth, Texas 77483

May 2, 1991
ST-HL-AE-3763
File No.: G26
10CFR50.73

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

South Texas Project Electric Generating Station
Unit 1
Docket No. STN 50-498
Licensee Event Report 91-010
Regarding Manual Engineered Safety
Features Actuation Due to a Toxic Gas Alarm

Pursuant to 10CFR50.73, Houston Lighting & Power Company (HL&P) submits the attached Licensee Event Report (LER 91-010) regarding a manual Engineered Safety Features actuation due to a toxic gas alarm. This event did not have any adverse impact on the health and safety of the public.

If you should have any questions on this matter, please contact Mr. C. A. Ayala at (512) 972-8628 or me at (512) 972-7205.

William J. Jump
Manager,
Nuclear Licensing

KT/amp

Attachment: LER 91-010 (South Texas, Unit 1)









IE22
1/1

cc:

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Revised 01/29/91

L4/NRC/

NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

# LICENSEE EVENT REPORT (LER)

| FACILITY NAME (1) | DOCKET NUMBER (2) | PAGE (3) |
|---|---|---|
| South Texas, Unit 1 | 0 5 0 0 0 4 9 8 | 1 OF 0 3 |

TITLE (4) Manual Engineered Safety Features Actuation Due to a Toxic Gas Alarm

| EVENT DATE (5) | | | LER NUMBER (6) | | | REPORT DATE (7) | | | OTHER FACILITIES INVOLVED (8) | |
|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | DAY | YEAR | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | MONTH | DAY | YEAR | FACILITY NAMES | DOCKET NUMBER(S) |
| 0 4 | 0 4 | 9 1 | 9 1 | — 0 1 0 | — 0 0 | 0 5 | 0 2 | 9 1 | | 0 5 0 0 0 |
| | | | | | | | | | | 0 5 0 0 0 |

| OPERATING MODE (9) | 1 | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11) | | | |
|---|---|---|---|---|---|
| POWER LEVEL (10) | 0 1 3 | 20.402(b) | 20.405(c) | X 50.73(a)(2)(iv) | 73.71(b) |
| | | 20.405(a)(1)(i) | 50.36(c)(1) | 50.73(a)(2)(v) | 73.71(c) |
| | | 20.405(a)(1)(ii) | 50.36(c)(2) | 50.73(a)(2)(vii) | OTHER (Specify in Abstract below and in Text, NRC Form 366A) |
| | | 20.405(a)(1)(iii) | 50.73(a)(2)(i) | 50.73(a)(2)(viii)(A) | |
| | | 20.405(a)(1)(iv) | 50.73(a)(2)(ii) | 50.73(a)(2)(viii)(B) | |
| | | 20.405(a)(1)(v) | 50.73(a)(2)(iii) | 50.73(a)(2)(x) | |

LICENSEE CONTACT FOR THIS LER (12)

| NAME | TELEPHONE NUMBER |
|---|---|
| Charles Ayala - Supervising Licensing Engineer | AREA CODE 5 1 2 — 9 7 2 - 8 6 2 8 |

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NPRDS | | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NPRDS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| | | | | | | | | | | | |

SUPPLEMENTAL REPORT EXPECTED (14)

| | | EXPECTED SUBMISSION DATE (15) | MONTH | DAY | YEAR |
|---|---|---|---|---|---|
| YES (If yes, complete EXPECTED SUBMISSION DATE) | X NO | | | | |


ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On April 4, 1991, Unit 1 was in Mode 1 at 13 percent power. At 0843 hours, the main control room received a toxic gas high concentration alarm. The control room ventilation system was manually placed into the recirculation mode as a conservative response. No toxic gas was determined to be present after an immediate investigation. The alarm occurred as a result of a failure in the Emergency Response Facilities Data Acquisition and Display System computer. The cause of the alarm was a failed fiber optics data acquisition controller subsystem printed circuit board. The failed printed circuit board has been replaced as a result of the event.


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| FACILITY NAME (1) | DOCKET NUMBER (2) | LER NUMBER (6) | | | PAGE (3) |
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| South Texas, Unit 1 | 0 5 0 0 0 4 9 8 | 9 1 | 0 1 0 | 0 0 | 0 2 OF 0 3 |

TEXT (If more space is required, use additional NRC Form 366A's) (17)

DESCRIPTION OF EVENT:

On April 4, 1991, Unit 1 was in Mode 1 at 13 percent power. At 0843 hours, the main control room (MCR) received a toxic gas hign concentration alarm. Operations personnel immediately recognized that automatic actuation of control room ventilation to recirculation mode did not occur and manually repositioned the dampers to the recirculation mode as a conservative measure. An immediate investigation determined that no toxic gases were actually present, and the alarm occurred as a result of a failure in the Emergency Response Facilities Data Acquisition and Display System (ERFDADS) computer. The damper lineup was restored to normal at 0855 hours. At approximately 1300 hours on April 8, 1991, plant personnel determined that this event was reportable as a manual Engineered Safety Features (ESF) actuation to mitigate a presumed event. The NRC was notified of this event at approximately 1600 hours on April 8, 1991.

A toxic gas automatic ESF actuation may be initiated by one of two toxic gas analyzers upon detection of gas concentrations above prescribed limits. While an ESF actuation is driven directly from actuation relays within the analyzers, the MCR alarm is generated by ERFDADS upon recognition of the actuation. Troubleshooting revealed that the cause of the alarm was a failed fiber optics data acquisition controller subsystem (FODACS) printed circuit board. The ERFDADS computer system operates approximately one hundred fifty (150) annunciators. Of these, the high toxic gas ESF actuation alarm is the only priority one (red) annunciator requiring immediate operator action. As such, the operators response to the alarm was an appropriate action.

CAUSE OF EVENT:

The cause of the manual positioning of ESF dampers was the correct response to the alarm. The cause of the alarm was a failed fiber optics data acquisition controller subsystem (FODACS) printed circuit board.

ANALYSIS OF EVENT:

Manual actuation of an Engineered Safety Feature to mitigate the consequences of a presumed event is reportable pursuant to 10CFR50.73(a)(2)(iv). The control room ventilation system was placed into the recirculation mode as a conservative response. No toxic gas was determined to be present and this event did not affect normal operation of the unit.

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| FACILITY NAME (1) | DOCKET NUMBER (2) | LER NUMBER (6) | | | PAGE (3) |
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| South Texas, Unit 1 | 0 5 0 0 0 4 9 8 | 9 1 | — 0 1 0 | — 0 0 | 0 3 OF 0 3 |

TEXT (If more space is required, use additional NRC Form 366A's) (17)

ANALYSIS OF EVENT: (cont'd)

While any unnecessary challenge to an Engineered Safety Feature is undesirable, actuation of the control room ventilation system to the recirculation mode represents a minimal hazard since it could not cause, worsen, or prevent mitigation of an accident.

CORRECTIVE ACTIONS:

The failed FODACS printed circuit board was replaced on April 5, 1991.

No additional actions have been determined to be necessary based upon the reliable past performance of ERFDADS and the low FODACS board failure rate. In addition, only one priority one (red) annunciator is driven by ERFDADS, and the operation of control room ventilation dampers does not represent a significant challenge to ESF equipment.

ADDITIONAL INFORMATION:

The fiber optics data acquisition controller subsystem printed circuit board is a MODCOMP, Inc. Model 1819-1.

There have been no previous events regarding an ESF actuation as a result of a failure in the ERFDADS computer. There have also been no manual ESF actuations resulting from the control room alarms.

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